

WHAT IS CLAIMED IS:

1. A stent for implanting in a body lumen, comprising:

a plurality of adjacent cylindrical elements each having a circumference extending about a longitudinal stent axis and being substantially independently expandable in a radial direction, each cylindrical element being

5 arranged in alignment along the longitudinal stent axis and formed in a generally serpentine wave pattern transverse to the longitudinal axis and containing alternating valley portions and peak portions, wherein at least two adjacent valley portions or two adjacent peak portions on each cylindrical element is capable of nesting when the stent is crimped or collapsed; and

10 a plurality of interconnecting members extending between the adjacent cylindrical elements and connecting adjacent cylindrical elements to one another.

2. The stent of claim 1, wherein:

at least two valley portions in each cylindrical element have differing longitudinal lengths which permits nesting of the cylindrical element.

3. The stent of claim 2, wherein:

one valley portion is a V-shaped portion and the other adjacent valley portion is a W-shaped portion having different longitudinal lengths.

4. The stent of claim 3, wherein:

the W-shaped valley portion is smaller in length than the V-shaped valley portion.

5. The stent of claim 1, wherein:

at least two adjacent peak portions in each cylindrical element have differing longitudinal lengths which permits nesting of the cylindrical element.

6. The stent of claim 5, wherein:

one peak portion is a V-shaped portion and the adjacent peak portion is a W-shaped portion having different longitudinal lengths.

7. The stent of claim 6, wherein:

the W-shaped peak portion has a longitudinal length less than
the V-shaped peak portion.

8. The stent of claim 1, wherein:

at least two adjacent peak portions in each cylindrical element
have differing longitudinal lengths which permit nesting and at least two adjacent
valley portions in each cylindrical element have differing longitudinal lengths
5 which permits nesting of the valley portions.

9. The stent of claim 8, wherein:

one peak portion is a V-shaped portion and an adjacent peak
portion is a W-shaped portion and one valley portion is a V-shaped portion and an
adjacent valley portion is a W-shaped portion.

10. The stent of claim 9, wherein:

the W-shaped portion of both the valley portion and peak portion has a longitudinal length smaller than the V-shaped portion of the peak portion and valley portion.

11. The stent of claim 1, wherein:

the interconnecting members connect W-shaped valley portions with V-shaped valley portions of adjacent cylindrical elements.

12. The stent of claim 10, wherein:

the interconnecting members connect W-shaped valley portions and W-shaped peak portions with each adjacent cylindrical element.

13. The stent of claim 12, wherein:

the interconnecting member connects W-shaped valley portions with V-shaped valley portions on adjacent cylindrical elements.

14. The stent of claim 13, wherein:

each cylindrical element has a plurality of valley portions having a W-shape and wherein adjacent cylindrical elements are arranged so that the W-shaped valley portions are out of phase.

15. The stent of claim 12, wherein:

each cylindrical element has at least two peak portions having a W-shaped portion and two valley portions having a W-shaped portion.

16. The stent of claim 15, wherein:

the W-shaped peak portion and W-shaped valley portion are arranged adjacent to each other on each cylindrical element.

17. The stent of claim 1, wherein:

each cylindrical element includes at least four valley portions having a W-shaped portion.

18. The stent of claim 17, wherein:

each cylindrical element has four valley portions having a V-shape which are adjacent to each of the W-shaped valley portions.

19. The stent of claim 18, wherein:

the W-shaped valley portions on each cylindrical element has a longitudinal length which is less than the longitudinal length of an adjacent V-shaped valley portion.

20. The stent of claim 19, wherein:

each cylindrical element has eight peak portions and eight valley portions.

21. The stent of claim 1, wherein:

the stent is expandable from a collapsed position to an expanded position by the application of a controlled external force.

22. The stent of claim 1, wherein:

the stent is made from a self-expanding material which allows the stent to move between a collapsed position and an expanded position.

23. A stent for implanting in a body lumen, comprising:

a plurality of adjacent cylindrical elements each having a circumference extending about a longitudinal stent axis and being substantially independently expandable in a radial direction, each cylindrical element being 5 arranged in alignment along the longitudinal stent axis and formed in a generally serpentine wave pattern transverse to the longitudinal axis and containing alternating valley portions and peak portions, wherein at least two adjacent valley portions or two adjacent peak portions on each cylindrical element is capable of nesting when the stent is crimped or collapsed; and